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when  $n=1$  and  $Y=H$ , the formula equals  $CH_3OH$

when  $n=2$  and  $Y=H$ , the formula equals  $CH_3OCH_2OH$

when  $n=3$  and  $Y=H$ , the formula equals  $CH_3OCH_2OCH_2OH$

when  $n=4$  and  $Y=H$ , the formula equals  $CH_3OCH_2OCH_2OCH_2OH$

when  $n=5$  and  $Y=H$ , the formula equals  $CH_3OCH_2OCH_2OCH_2OCH_2OH$

when  $n=1$  and  $Y=CH_3$ , the formula equals  $CH_3OCH_3$  (dimethyl ether)

when  $n=2$  and  $Y=CH_3$ , the formula equals  $CH_3OCH_2OCH_3$

when  $n=3$  and  $Y=CH_3$ , the formula equals  $CH_3OCH_2OCH_2OCH_3$

when  $n=4$  and  $Y=CH_3$ , the formula equals  $CH_3OCH_2OCH_2OCH_2OCH_3$

when  $n=5$  and  $Y=CH_3$ , the formula equals  $CH_3OCH_2OCH_2OCH_2OCH_2OCH_3$

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filing but does not maintain shareholder status throughout the course of the litigation, the plaintiff no longer has standing to bring the action. *See Schilling v. Belcher*, 582 F.2d 995, 996 (5th Cir.1978) (holding that shareholder whose shares were sold during pendency of derivative suit no longer had standing to continue bringing the action); *see also Lewis v. Chiles*, 719 F.2d 1044, 1047 (9th Cir.1983) (same).

[2] Here, Johnson was a shareholder when he filed in the Court of Federal Claims in the spring of 2000. However, Johnson's shares were canceled under the plan of reorganization in bankruptcy, approved on September 15, 2000. Johnson therefore did not maintain his shareholder status throughout the litigation and as such his standing to bring the takings claim terminated.

Because we decide this case on the ground that Johnson lost standing to bring the takings claim because he was not a shareholder throughout the litigation, we need not reach the issue considered by the Court of Federal Claims and raised here on appeal of whether the bankruptcy trustee abandoned the takings claim such that Johnson was free to bring it on behalf of JPI. Nor need we address the Court of Federal Claims' analysis regarding whether Johnson, on the merits, presented a valid takings claim. We accordingly affirm the grant of summary judgment in favor of the government by the Court of Federal Claims.

**AFFIRMED.**



**Arjun SINGH, Appellant,**

**v.**

**Anthony J. BRAKE, Appellee.**

**No. 01-1621.**

**United States Court of Appeals,  
Federal Circuit.**

**Nonprecedential Opinion Issued  
Oct. 16, 2002.\***

**Jan. 29, 2003.**

Interference proceeding was brought involving invention of DNA construct. On remand, 222 F.3d 1362, the Board of Patent Appeals and Interferences awarded judgment in interference to patentee, and applicant appealed. The Court of Appeals, Lourie, Circuit Judge, held that: (1) applicant failed to establish that he had conceived of plan to design DNA construct before patentee's priority date, and (2) patentee's patent application which he based his priority claim, provided adequate written description of invention and was enabling.

**Affirmed.**

**1. Patents ⇐106(1)**

Refusal of Board of Patent Appeals and Interferences to consider issues raised for first time on remand of interference proceeding was not abuse of discretion; arguments not raised at outset of interference could properly be seen as waived. 37 C.F.R. § 1.655(b).

**2. Patents ⇐90(1)**

"Conception," for purpose of determining priority, must encompass all limitations of claimed invention, and is complete only when idea is so clearly defined in

\* Originally published at 48 Fed.Appx. 766.

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to design the claimed construct prior to January 12, 1983.

[8] Because we find that Singh did not meet his burden of demonstrating conception prior to Brake 1's filing date by a preponderance of the evidence, we need not address Singh's arguments regarding reduction to practice. However, we note the Board's finding that, apart from attorney argument, "Singh's evidence of diligence primarily consists of various pages from Dr. Singh's laboratory notebook which are (i) unexplained as to content and relevance to the invention of the Count, and (ii) uncorroborated." *Brake*, Paper No. 199 at 88. We agree that Singh's activities completed on December 20, 1982, were the only relevant, corroborated activities performed by Singh prior to Brake 1's January 12, 1983, filing date, and, as a result, Singh failed to prove reasonable diligence toward reduction to practice by a preponderance of the evidence.

### C. Written Description and Enablement

[9, 10] Whether a specification supports a claim corresponding to a count, and thus satisfies the written description requirement of 35 U.S.C. § 112, ¶ 1, is a question of fact, *Vas-Cath v. Mahurkar*, 935 F.2d 1555, 1562, 19 USPQ2d 1111, 1116 (Fed.Cir.1991), and is, in appeals from the United States Patent and Trademark Office, reviewed under the substantial evidence standard. *In re Gartside*, 203 F.3d at 1315, 53 USPQ2d at 1775.

5. Singh bases that number on the formula " $((R)_r-(GAXYCX)_n\text{-Gene})_y$ " disclosed at page 3, line 33, of Brake 1, in which R = CGX or AZZ; r = "an integer of from 2 to 4, ..., preferably 2"; X = T, G, C, or A; Y = G or C; y = "an integer of least one and usually not more than 10, more usually not more than four ..."; Z = A or G; and n = "0 or an integer which will generally vary from 1 to 4, usually 2 to 3."

Singh argues that the Board erred in concluding that Brake is entitled to the benefit of the Brake 1 application. First, Singh contends that Brake did not provide an adequate written description of the invention of the count in the Brake 1 application, and should not be entitled to its benefit. According to Singh, Brake 1 disclosed a large genus, allegedly encompassing over 9000 species<sup>5</sup> (n is 0 or 1 to 4), of which the count is directed to only two (i.e., those where n = 0). Secondly, Singh asserts that Brake 1 does not provide an enabling disclosure with respect to the invention of the count, arguing that Brake 1 does not disclose how to make and use the "n = 0" embodiment, and that "the techniques which were available to Brake at the time of filing the Brake 1 Application were not sufficient to obtain the DNA constructs of the Count." Singh also argues that Brake 1 "is replete with passages which guide one of ordinary skill in the art to constructs wherein n > 0, which constructs are not encompassed by the Count." Finally, Singh argues that "during prosecution of the Brake 2 Application, Brake argued that the results obtained with the n = 0 construct were unexpected, because those of ordinary skill in the art believed that the Glu-Ala sequences were required."

Singh's arguments are not persuasive. First, we disagree with Singh's argument that the invention of the count represents just two of 9000+ species disclosed in Brake 1. Singh's calculation of 841 permu-

According to Singh, Each "R" can encode either Lys or Arg, so (R)<sub>r</sub> can encode twenty-eight (i.e.,  $2^3 + 2^3 + 22^4$ ) different amino acid sequences. In addition, each "GAXYCX" sequence can encode any of four amino acid sequences: Asp-Pro, Asp-Ala, Glu-Pro, or Glu-Ala, so (GAXYCX)<sub>n</sub> can encode 341 (i.e.,  $4^0 + 4^1 + 4^2 + 4^3 + 4^4$ ) different amino acid sequences. Thus, Singh argues that the Brake 1 formula covers 9548 (i.e.,  $28 \times 341$ ) different species.

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tations for  $(\text{GAXYCX})_n$  is apparently based on an unwarranted assumption that each iteration of the parenthetical sequence is independently chosen. However, as Brake pointed out, because the variable 'n' is outside the parentheses,  $(\text{GAXYCX})_n$  can code for either no amino acids (i.e., when  $n = 0$ ), or 1 to 4 copies of one of four different amino acid sequences (i.e., Asp-Pro, Asp-Ala, Glu-Pro, or Glu-Ala). *Brake*, Paper No. 199 at 20-21 n. 13. Thus, there are at most only seventeen (i.e.,  $4^0 + 4^1 + 4^1 + 4^1 + 4^1$ ) permutations of that sequence. Even among those seventeen, however, we agree with Brake that there are only two meaningful embodiments: one in which a dipeptidylaminopeptidase A (DPAP) signal is present (i.e.,  $n = 1$  to 4), and one in which it is not (i.e.,  $n = 0$ ).

Moreover, Singh's calculation of twenty-eight possibilities for the Lys/Arg sequences is artificially inflated because it ignores the disclosure of claim 5 of Brake 1:

5. A DNA construct comprising a sequence of the following formula:

$\text{L}-(\text{R}-\text{S}-(\text{GAXYCX})_n-\text{Gene}^*)$ ,

wherein:

L is a leader sequence recognized by yeast for secretion;

R and S are codons coding for arginine and lysine;

X is any nucleotide;

Y is guanosine or cytosine;

y is an integer of from about 1 to 10;

Gene\* is a gene foreign to yeast; and

n is 0 or 1 to 4.

U.S. Application 06/457,325 at 16, ll. 20-32.

In claim 5, spacer R-S encodes four possible sequences (i.e., Lys-Arg, Arg-Arg, Arg-Lys, or Lys-Lys), not 28. Of these four, two permutations, Lys-Arg and Arg-Arg, are within the scope of the count.

Singh cites *Fujikawa v. Wattanasin*, 93 F.3d 1559, 39 USPQ2d 1895 (Fed.Cir. 1996), for the proposition that an application disclosing a generic chemical formula must provide adequate direction to those of ordinary skill in the art to lead them to a subgenus of the proposed count. We find Singh's reliance on *Fujikawa* to be unsound. In *Fujikawa*, we held that disclosure of a generic quinoline structure with four variable groups, each of which could be independently chosen from a list of functional groups, provided insufficient written description support for a count directed to a subgeneric structure having a single combination of the four groups. *Id.* at 1569-71, 39 USPQ2d at 1904-05. However, Brake 1's formula does not present the same issue as did the quinoline in *Fujikawa*. First, replacing a functional group on a chemical compound can often have highly unpredictable results. We noted in *Fujikawa* that even a change as seemingly trivial as replacing an isopropyl group with the isosteric cyclopropyl group at issue in that case could result in either a significant improvement or reduction in the activity of the compound against a particular biological target. *Id.* In the present case, on the other hand, as mentioned above, there are only two subgenera that are biologically relevant: one in which a DPAP signal is present (i.e.,  $n = 1$  to 4), and one in which it is not (i.e.,  $n = 0$ ), a simpler case than in *Fujikawa*. Here, moreover, claim 5 of Brake 1 discloses that "n is 0 or 1 to 4," which is a clear "blaze mark" providing *in ipso verbis* support for " $n = 0$ " in the count. *In re Ruschig*, 54 C.C.P.A. 1551, 379 F.2d 990, 994-95, 154 USPQ 118, 122 (CCPA 1967).

The Supreme Court has explained that "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence." *In re Gartside*, 203 F.3d at 1312,

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53 USPQ2d at 1773 (citing *Consolo v. Federal Maritime Comm'n*, 383 U.S. 607, 620, 86 S.Ct. 1018, 16 L.Ed.2d 131 (1966)). In *Fujikawa*, we said that "[w]hile *Fujikawa's* arguments are not without merit, we cannot say, on this record, that the Board's decision was clearly erroneous." 93 F.3d at 1571, 39 USPQ2d at 1905. In view of the fact that the "substantial evidence" standard of review that we now use post-*Zurko* requires us to give decisions of the Board greater deference than we gave in cases such as *Fujikawa*, we likewise decline to find legal error in the Board's conclusion on the record in the present case.

Singh's reliance on *Bigham v. Godtfredsen*, 857 F.2d 1415, 8 USPQ2d 1266 (Fed. Cir.1988), is also unavailing. In *Bigham*, Godtfredsen's first application disclosed a compound having a substituent "X", where X was defined as "a halogen atom." The application provided as its only example a compound in which X was chloro. *Id.* at 1416, 857 F.2d 1415, 8 USPQ2d at 1267. This court ruled that that application's disclosure of "halogen" did not meet the requirements of § 112 as a written description of bromo or iodo species, particularly where Godtfredsen had earlier argued in the same case that bromo and iodo were patentably distinct from chloro in order to urge bifurcation of the count. *Id.* at 1417, 857 F.2d 1415, 8 USPQ2d at 1268. In the present case, in contrast, "n = 0" was disclosed in Brake 1. If Godtfredsen had provided examples of fluoro, bromo, and iodo compounds in addition to the chloro compound, that case might have been decided differently, even in spite of Godtfredsen's "patentably distinct" argument.

[11, 12] Singh's arguments with respect to enablement are likewise unconvincing. Enablement is a question of law based on underlying factual determinations. *In re Swartz*, 232 F.3d 862, 863, 56 USPQ2d 1703, 1704 (Fed.Cir.2000). We

review the Board's underlying findings of fact for substantial evidence, and review *de novo* its ultimate conclusion whether a disclosure is enabling. *Id.* Singh argues in his brief:

The Board takes internally inconsistent positions with respect to whether methods for obtaining a construct of the Count using Brake's starting material were available to those of ordinary skill in the art at the time the Brake 1 Application was filed. To support its finding that Brake is entitled to benefit, the Board finds that such methods existed. However, to support its finding that Singh had not conceived of the invention prior to the Brake 1 Application filing date, the Board makes the contrary finding.

We find no error or inconsistency in the Board's analysis. As we wrote in *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1050, 34 USPQ2d 1565, 1569 (Fed.Cir. 1995), "the enablement requirement ... looks to the objective knowledge of one of ordinary skill in the art." *Id.* (citing *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1532, 3 USPQ2d 1737, 1742 (Fed.Cir.1987)). Thus, whereas the test for determining whether or not Singh conceived the construct of the count depended on Singh's own personal knowledge of methods for making the construct and his formulation of a definite and permanent idea therefor, whether Brake 1 enables an invention within the count does not depend on what Brake knew, but rather on whether the application enables one skilled in the art to make and use the invention, *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed.Cir.1986), "at the time the patent application was filed." *Ajinomoto Co. v. Archer-Daniels-Midland Co.*, 228 F.3d 1338, 1345, 56 USPQ2d 1332, 1337 (Fed.Cir.2000). The Board found that the testimony of Brake's witness, Dr.